

**Notice of Allowability**

Application No.

09/608,874

Examiner

Steven R. Garland

Applicant(s)

MAZUMDER, JYOTI

Art Unit

2125

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the papers filed 4/20/07.
2. ☒ The allowed claim(s) is/are 1-3,5-10 renumbered respectively 1-9.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### Reasons For Allowance

1. The following is an examiner's statement of reasons for allowance: Islam et al. 6,269,540, Hammeke 4,724,299, and Lewis et al. 5,961,862 are the closest art of record. is the closest art of record.

The prior art fails to teach or fairly suggest in regards to claim 1 and its dependent claims, the claimed method of controlling residual stress in conjunction with an additive manufacturing process of providing a deposition head including a laser outputting a laser beam surrounded by a metal powder feed; heating a localized region of the substrate with the laser beam to create a melt pool while feeding metal powder into the melt pool; directing the beam of one or more lasers into the zone following the deposition of the material at a temperature less than the melting point of the material as a means of controlling residual stress; and adjusting the location or intensity of the laser beam(s) used to control the stress to adjust the location and/or magnitude of the residual stress. Similar comments apply to claim 6 and its dependent claims.

Islam et al. teaches surrounding the powder feed by lasers as shown in figure 1 and does not teach or suggest the combination of a laser beam surrounded by a powder feed and then the use of a laser beam to reduce stress.

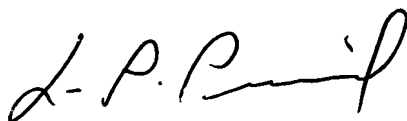
Islam also teaches that it is known to use a laser beam surrounded by a powder feed in col. 2, lines 23-32 and which is also shown by Hammeke and Lewis et al. However Lewis in col. 1, lines 32-39 expressly discloses that directed light fabrication of an article results in an article relatively free of internal stresses. Hammeke and Lewis both fail to provide stress reduction using a laser beam following deposition. Islam

teaches that the use of four beams surrounding the powder feed provides the advantage of preheating and post heating which is opposite to the laser beam being surrounded by the powder feed in the claimed invention and use of stress reduction in the claimed invention. It appears without using the applicant's disclosure as a guide and the use of hindsight that the instant claimed invention would not be rendered obvious by the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven R. Garland whose telephone number is 571-272-3741. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



LEO PICARD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

Art Unit: 2125

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*SRG*

Steven R Garland  
Examiner  
Art Unit 2125

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